REMARKS/ARGUMENTS

Claims 23 and 24 are pending. Claim 24 stand rejected under 35 USC 102(b) as anticipated by Yan (6,025,988). Claim 23 stands rejected under 35 USC 103(a) over Yan and Shier (5,488,518).

35 USC 130(A) REJECTION OF CLAIM 24

Claim 23 stands rejected under 35 USC 103(a) over Yan and Shier (5,488,518). The Applicant disagrees with this rejection pointing out that Yan does not disclose the elements of the Claim as discussed by the Examiner and will proceed with a detailed response after quoted the Claim:

> *23. (Previously presented) An interconnecting circuit for a voice-coil actuator with multiple sliders and corresponding micro-actuators in a disk drive, comprising:*
>
> *a main flex circuit (220) with interconnections for a read-write preamplifier (222) for said multiple sliders, a ribbon cable socket (226), a micro-actuator source control bundle (360) shared by each of said micro-actuators, and a bridge coupling region (250);*
>
> *a plurality of bridge flex circuits (200-216) each including interconnected bridge flex circuit coupling sites (350, 352), slider contact areas, and test probe areas;*
>
> *a cleavage line (330, 332) included in each of the plurality of bridge flex circuits (200-216) and providing for a separation and removal of said test probe areas after a manufacturing test for continuity; and*
>
> *a reflow solder connection of the main flex circuit (220) and all the plurality of bridge flex circuits (200-216) at said bridge coupling region (250) and bridge flex circuit coupling sites (350, 352).*

The Applicant finds that the Examiner has confused the main flex circuit with the bridge flex circuits disclosed by Yan and has used Yan's bridge flex circuit to act both as the main flex circuit and the bridge flex circuit, which is an inoperable combination. Yan's circuit is not setup to couple to more instances of itself, nor is it setup for a ribbon cable connector. This fundamental confusion will be discussed in detail through an element by element refutation of the Examiner's argument, starting by quoting the appropriate part of the Claim first, followed by quoting the Examiner's remarks, then stating the Applicant's view sometimes with quotations from the cited prior art.

Element of the Claim 23:

> *23. (Previously presented) An interconnecting circuit for a voice-coil actuator with multiple sliders and corresponding micro-actuators in a disk drive, comprising:*

Examiner's remarks: "Yan discloses an interconnecting circuit (as depicted in figure 2 of Yan and associated descriptions for details) for a voice coil actuator with multiple sliders (12 depicted in figure 15 of Yan and see associated descriptions for details) and corresponding micro-actuators (element 24 in figure 2 and associated descriptions for details) in a disk drive."

Applicant's viewpoint: Here is where the divergence of perspective begins. Yan discloses a interconnection device for coupling to the head suspension assembly, not to the voice coil actuator. His interconnection circuit more closely resembles the bridge flex circuits 210-216 as shown in Figure 1 of this patent application.

Element of the Claim 23:

> *a main flex circuit (220) with interconnections for a read-write preamplifier (222) for said multiple sliders, a ribbon cable socket (226), a micro-actuator source control bundle (360) shared by each of said micro-actuators, and a bridge coupling region (250);*

Examiner's remarks: "a main flex circuit (element 14 in figure 2) with interconnections for a read-write preamplifier (element 44 in figure 2), a ribbon cable socket (is inherent within the reference), a micro-actuator source control bundle (as depicted in figure 9 of Yan and see associated descriptions for details), and a bridge coupling region (col. 7 lines 11-25 of Yan)". (page 2)

"Although Yan suggests the interconnection for the read-write preamplifier (col. 5, lines 12-24 of Yan) with a single chip, Yan is silent on the capability specifies of the interconnection with a single preamplifier or chip for the multiple of heads or sliders. Shier is relied upon for the teachings a single preamplifier or chip with capability for a multiple of sliders (as shown in figure 1 and see col. 3 lines 38-42 of Shier". (page 3)

"It would have been obvious to one of ordinary sk8ll in the art at the time of the invention was made to modify the preamplifier of Yan with the preamplifier for the multiple sliders (as shown in figure 1 and see col. 3 lines 38-42 of Shier". (page 3)

"Furthermore, the single chip shows no unexpected result to occur. Thus it is merely a design choice in a routine experimentation, specifically when there no unexpected results seems to occur". (page4)

Applicant's viewpoint: The problem is that Yan teaches what is called a bridge flex circuit (210-216) in this patent application, not the main flex circuit (220). Yan shows how to couple his circuit to a head suspension assembly, whereas the main flex circuit is to be coupled to the voice coil actuator as shown in Figure 3A. Yan teaches putting a preamplifier on each of the bridge flex circuits, not on a main flex circuit, teaching away from the use of a preamplifier on the main flex circuit. Consider the ribbon cable (226) of this application as shown in Figures 3A and 3B particularly. Yan has no a ribbon cable connector because his circuit does not connect to one, it normally connects to a main flex circuit (which is not discussed as far as the Applicant can tell) and the head suspension assembly (see Yan's Figures 1 and 2).

Consequently, this element is not only missing from Yan, but what Yan discloses is inoperable lacking a ribbon cable socket, connections for multiple bridge flex circuits, and presents a teaching away from a main flex circuit as quoted above from the claim, in that the main flex

circuit has a preamplifier serving multiple sliders, because Yan has placed a preamplifier on each bridge flex circuit.

Element of the Claim 23:

> *a plurality of bridge flex circuits (200-216) each including interconnected bridge flex circuit coupling sites (350, 352), slider contact areas, and test probe areas;*

Examiner's remarks: "a plurality of bridge flex circuits each including interconnected bridge flex circuit coupling sites, slider contact areas, and test probe areas (as depicted in figure 2 and see associated descriptions for details)"

Applicant's viewpoint: Figure 2 is just one bridge flex circuit, not multiple bridge flex circuits. The Examiner has not shown how one can become many in this situation and be the main flex circuit, which is to be coupled to itself.

Consequently, the Applicant finds that this use of Yan is inoperable, one being interpreted as many and already being used for a main flex circuit, for which it fails.

Element of the Claim 23:

> *a cleavage line (330, 332) included in each of the plurality of bridge flex circuits (200-216) and providing for a separation and removal of said test probe areas after a manufacturing test for continuity; and*

Examiner's remarks: "a cleavage line (element 40 in figure 2 and see associated descriptions for details) included in each of the plurality of bridge flex circuit and providing for a separation and removal of test probe areas after a manufacturing test for continuity (col. 5 lines 29-42 of Yan)"

Applicant's viewpoint: the one bridge flex circuit shown in figure 2 does appear to have a cleavage line, but by the Examiner's argument, this is also the main flex circuit with a ribbon

cable connector and a preamplifier shared by multiple instance of this circuit to itself, which is again inoperable and contradictory.

Element of the Claim 23:

> *a reflow solder connection of the main flex circuit (220) and all the plurality of bridge flex circuits (200-216) at said bridge coupling region (250) and bridge flex circuit coupling sites (350, 352).*

Examiner's remarks: "a reflow solder connection of the main flex circuit and all the plurality of bridge flex circuits at the bridge coupling region and bridge flex circuit coupling sites (in col. 7, lines 17-23 where Yan describes connections of the flex circuit)".

Applicant's viewpoint: There has been no showing of a main flex circuit with a preamplifier shared by multiple sliders, with a ribbon cable conector site and multiple instances of a bridge flex circuit (which is what Yan shows and teaches). Consequently, there can be no reflow solder connection between these components.

Summary of the Applicant's viewpoint: There has been a confusion between the bridge flex circuits referred to in this application by 210, 212, 214 and 216, which Yan does teach a version of, and the main flex circuit 220, with its preamplifier 222, ribbon cable connector socket 226 and the control signal bundle 360 shared across the bridge flex circuits to the various micro-actuators 300, 302, 304 and 306 as shown in Figures 1 and 2. Yan teaches a bridge flex circuit including a preamplifier, in effect teaching away from the preamplifier claimed on the main flex circuit here. Combining Yan with Takaishi does not overcome the inherent problems of inoperability, contradiction and the teaching away found in Yan. Consequently, the Examiner is requested to remove the rejection of this Claim.

35 USC 102(B) REJECTION OF CLAIM 24

Claim 24 stands rejected as anticipated by Yan. The Applicant disagrees with this rejection for the following reasons: Yan does not teach a micro-actuator source control bundle shared by each of the micro-actuators. While the Applicant disagrees with the rejection the Claim has been amended to clarify the invention:

> *24. (Currently amended) A main flex circuit (220) for a disk drive voice-coil actuator, comprising:*
>
> *a ribbon cable connector site providing a source control bundle (360) for positioning control of a plurality of read-write heads (200-206) and shared by each of a plurality of micro-actuators (300-606) included in a voice-coil actuator for a disk drive;*
>
> *a bridge coupling region (210-216) providing connections for each micro-actuator (300-306) between said source control bundle on a main flex circuit (220) and a micro-actuator control bundle (310-316) on a bridge flex circuit for each of said read-write heads.*

The Applicant finds that the Examiner has confused the main flex circuit (220) with the bridge flex circuits disclosed by Yan for which it is inoperable. Yan's circuit is not setup to couple to more instances of itself, nor is it setup for a ribbon cable connector to provide a source control bundle shared by each of a plurality of micro-actuators. Consequently, the Examiner is requested to remove the rejection from this Claim.

SUMMARY OF THESE REMARKS:

All rejections raised in the received Office Action have been addressed. The amended Claims as presented do not introduce new matter, nor do they represent an agreement with the Examiner's rejections` of these Claims. The amendments have been made strictly for the purpose of expediting the prosecution of this patent application. Consequently, the Applicant requests that this application be placed in condition for allowance.

Applicant invites the Examiner to contact Earle Jennings or Gregory Smith, as listed below, for a telephonic interview if so doing would expedite the prosecution of the application.

Very respectfully submitted,

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